

# Séminaire ICI : Gonzalo Seco-Granados

26 Mai 2017, 11:00

## Titre du séminaire et orateur

Channel Estimation, Achievable Rate and Efficiency in One-Bit Massive MIMO Systems.

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## Date et lieu

Vendredi 26 mai 2017, 11h.

ENSEA, salle 384

## Abstract

In this talk we will present some recent results on channel estimation and achievable rates for the uplink of a single-cell massive MIMO system where the base station is equipped with 1-bit ADC's. The Bussgang decomposition is shown to be a very useful tool for both system design and analysis. The impact of 1-bit quantization is limited at the expected operating SNR levels, and despite the strong non-linearity, with the appropriate tools, the system can be studied employing relatively conventional approaches. Next, the uplink-downlink SINR duality of MIMO systems is extended to the 1-bit base-station case. This allows us to obtain also approximate closed-form expressions for the downlink achievable rate with matched filter and zero-forcing precoding, and taking into account the effect of the imperfect channel state information. Finally, the trade-off between energy and spectral efficiency is explored.

## Bio

[Gonzalo Seco-Granados](#) was born in Barcelona, Spain, in 1972. He received the M.Sc. and Ph.D. degrees in Telecommunication Engineering in 1996 and 2000, respectively, from Universitat Politècnica de Catalunya (UPC), Barcelona. In 2002, he also received an MBA from IESE - University of Navarra in Barcelona and Columbia University in New York. He was a guest researcher at Brigham Young University, Utah, from May -to -August -1999.-From 2002 to 2005, he was member of the technical staff at the TT&C and Radionavigation Section, European Space Agency, The Netherlands, involved in the Galileo project and in the development of radionavigation receivers. He led the activities concerning indoor positioning for GPS and Galileo. Since the beginning of 2006, he is associate professor at the Department of Telecommunications and Systems Engineering of the Universitat Autònoma de Barcelona. Since March 2009, Gonzalo Seco Granados holds one of the six [Chairs of Technology and Knowledge Transfer UAB Research Park - Santander](#). Dr. Seco-Granados received two best Ph.D. thesis awards from UPC and the Spanish Association of Telecommunication Engineers, as well as the best presentation award

at the ION-GPS'2003 conference. He is Senior Member of the IEEE. Gonzalo Seco-Granados received an [ICREA Academia](#) fellowship in 2014.